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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,557	12/08/2003	William Albert Challener	1158/202	1515
26588	7590	10/16/2007	EXAMINER	
LIU & LIU 444 S. FLOWER STREET SUITE 1750 LOS ANGELES, CA 90071			GOMA, TAWFIK A	
			ART UNIT	PAPER NUMBER
			2627	
			MAIL DATE	DELIVERY MODE
			10/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/730,557	CHALLENER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tawfiq Goma	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 23 July 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

This action is in response to the amendment filed on 7/23/2007.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 6-12, and 15-20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Rottmayer et al (US 2003/0198146) in view of Jeong et al (US 2002/0039469).

Regarding claim 1, Rottmayer discloses a data recording head for use in conjunction with a data recording medium (fig. 3). Rottmayer further discloses using a waveguide (50, fig. 3). Rottmayer fails to disclose a first waveguide supported by the body and a second waveguide supported by the body and energy-coupled to the first waveguide. In the same field of endeavor, Jeong discloses a first waveguide supported by a body (11, fig. 1); and a second waveguide supported by the body and energy-coupled to the first waveguide (12,13, fig. 1). It would have been obvious to one ordinary skill in the art to modify the data recording head disclosed by Rottmayer by providing the waveguide taught by Jeong. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to provide a first and second waveguide in order to efficiently couple and reduce the spot sized of a beam emitted from a single mode single mode fiber (see Jeong abstract).

Regarding claim 12, Rottmayer discloses a data storage system, comprising: a data recording medium (fig. 3); a radiant energy source (52, fig. 3); a data recording head (22, fig. 3), comprising: a body (22, fig. 3), a waveguide supported by the body and coupled to the radiant energy source (50, fig. 3), the waveguide directing radiant energy to the data recording medium (fig. 3 and par. 25); and an actuator supporting and positioning the data recording head with respect to the data recording medium to effect data recording (28, fig. 2). Rottmayer fails to disclose a first waveguide and a second waveguide that is coupled to the first waveguide. In the same field of endeavor, Jeong discloses a first and second waveguide that are energy coupled (12, 13, fig. 1). The motivation for combining follows as in claim 1 above.

Regarding claim 2, Jeong further discloses wherein the first waveguide is configured to couple input radiant energy from an external source (11, fig. 1 and par. 23).

Regarding claim 6, Jeong further discloses wherein the first waveguide corresponds to an input spot size and the second waveguide corresponds to an output spot size, wherein the input spot size is larger than the output spot size ( $W_{in}$ ,  $W_{out}$ , fig. 1).

Regarding claim 7, Jeong further discloses wherein the first waveguide has a first width and the second waveguide, the first width and the second width being measured along a direction from the first waveguide to the second waveguide, wherein the first width is larger than the second width ( $W_{in}$ ,  $W_{out}$ , fig. 1).

Regarding claim 8, Jeong further discloses an index matching layer between the first and second waveguides for facilitating mode index matching between the first and second waveguides (14, fig. 1 104, fig. 4 and par. 30).

Regarding claims 9 and 15, Jeong further discloses wherein the index matching layer includes at least one of a cladding layer and a diffraction grating (par. 30 and par. 28).

Regarding claims 10 and 16, Jeong discloses a first and second waveguide as applied above. Rottmayer further discloses wherein a waveguide comprises a solid immersion optical element that is configured to focus radiant energy as an output (par. 27).

Regarding claim 11, Jeong discloses a first and second waveguides as applied above. Rottmayer discloses a write element to effect magnetic data recording, wherein the waveguide is configured relative to the write element to effect heat assisted magnetic recording (fig. 3 and par. 25).

Regarding claim 17, Jeong discloses a first and second waveguide as applied above. Rottmayer further discloses wherein the data recording medium includes a magnetic data recording medium (16, fig. 3) and wherein the data recording head further comprises a write element to effect magnetic data recording on the magnetic data recording medium (22, fig. 3 and par. 25), wherein the waveguide is configured relative to the write element (50, fig. 3) and the data recording head is supported and positioned by the actuator relative to the data recording medium to effect heat assisted magnetic recording (pars 22 and 25 and 28, fig. 2).

Regarding claim 18, Rottmayer discloses a method of data recording (par. 25), comprising the steps of: providing a radiant energy source (52, fig. 3); providing a data recording head comprising a first waveguide coupled to the radiant energy source (54, 50, fig. 3) directing radiant energy at a spot on the data recording medium (A, fig. 3 and par. 25); and recording data at the spot where radiant energy has been directed (par. 42). Rottmayer fails to disclose a first and second waveguide, wherein a second waveguide is energy-coupled to

the first waveguide and configured to direct radiant energy. In the same field of endeavor, Jeong discloses a first and second waveguide that are energy coupled for directing radiant energy (12, 13, fig. 1). The motivation for combining follows as in claim 1 above.

Regarding claim 19, Jeong further discloses herein the radiant energy source produces input radiant energy corresponding to a first spot size, wherein the second waveguide is configured to direct output radiant energy having a second spot size, which is smaller than the first spot size (Win, Wout, fig. 1).

Regarding claim 20, Rottmayer further discloses wherein the step of recording data includes magnetic data recording (par. 25).

Claims 3-5 and 13-14 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Rottmayer et al (US 2003/0198146) in view of Jeong et al (US 2002/0039469) as applied to claims 1-2, 6-12 and 15-20 above, and further in view of Dawes et al (6744951).

Regarding claims 3 and 13, Rottmayer in view of Jeong fail to disclose wherein the first waveguide is configured to end fire couple to the input radiant energy. In the same field of endeavor, Dawes discloses a waveguide that is end fire coupled to an optical fiber (col. 11 lines 35-38). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the recording head ad system disclosed by Rottmayer in view of Jeong by end fire coupling the waveguide to the energy source as taught by Dawes. The rationale is as follows: One of ordinary skill in the art at the time of the applicant's invention would have been motivated to end fire couple the waveguide with the energy source in order to maximize UV power coupling into the planar waveguides.

Regarding claims 4 and 14, Jeong further discloses wherein the input radiant energy corresponds to a first spot size, and the first waveguide has a first width that is sized to substantially correspond to the first spot size (W<sub>in</sub>, W<sub>out</sub>, fig. 1).

Regarding claim 5, Jeong further discloses wherein the second waveguide is configured to output radiant energy corresponding to a second spot size (W<sub>out</sub>, fig. 1).

***Response to Arguments***

Applicant's arguments filed 7/23/2007 have been fully considered but they are not persuasive.

In response to applicant's argument that Jeong and Rottmayer is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the Jeong reference teaches the use of an optical wave guide to reduce the spot size and the Rottmayer reference also uses an optical waveguide to perform recording. The Jeong reference is reasonably pertinent to the problems associated with using an optical waveguide with which the applicant is concerned. Furthermore, the references are analogous art because they are both concerned with the use of an optical waveguide to form an optical spot.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, motivation is found both in the general knowledge that in optical recording, the reduction of the spot size is advantageous to increasing the density of the recording and also in the Jeong reference which teaches a method of coupling an optical fiber and an integrated device while reducing the coupling and reflection loss (par. 81).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Regarding applicant's argument that the "width" claimed by applicant actually refers to the thickness of the waveguides in Jeong, this argument is not persuasive for two reasons. First, although applicant points to the disclosure to define the width as measured in a direction from the first waveguide to the second waveguide, this limitation is not claimed (excluding claim 7). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the direction of measuring the width) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Secondly, with respect to claim 7, the

width of the waveguides in Jeong are still measured in a direction from the first waveguide to the second waveguide because the second waveguide is displaced or centered about the first waveguide such that the direction of the width corresponds to applicant's width (see fig. 1). Finally, the width of Jeong is the width of the waveguide and not the thickness (or a dimension measured in the "offset" direction, fig. 1). Applicant's argument and amendment is attempting to make a distinction of the width based on a difference in the positioning of the two waveguides with respect to one another, however, this feature of positioning the waveguides is also not claimed by applicant.

Regarding applicant's argument that the Rottmayer reference is fully functional without the combination with the Jeong reference, this argument is also not persuasive because a fully functional device can be improved, and the fact that it is fully functional does not teach away from the combination.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tawfik Goma/  
10/08/2007

/William Korzuch/  
SPE, Art Unit 2627